ANNUAL REPORT 1970

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

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McGILL UNIVERSITY

THE COMMISSION

Chairman
HON. H. GRAHAM CROCKER, ED

Vice-Chairman
J. V. CLAUDE SAVOIE

Commissioner
W. ROYCE ANDERSON

Commissioner
CONRAD CASTONGUAY

Commissioner
EMILE P. LEGER

Commissioner
W. J. McNEVIN

Commissioner
J. W. O'BRIEN

Secretary of the Commission
P. J. BURNS

EXECUTIVE OFFICERS

General Manager
A. J. O'CONNOR

Assistant General Manager (Finance) and Comptroller
P. O. BEATON

CHIEF ENGINEER

L. J. WHALEN

DIVISIONS

Services	H. V. DENYER
Design and Construction	G. H. D. GANONG
Production and Planning	F. C. MacLOON
Purchasing and Supply	B. J. MacMILLAN
Economic Analysis	H. E. MARSHALL
Personnel	H. V. McINTYRE
Distribution	R. A. TONER
Accounting	L. M. TOTTEN
Marketing	W. A. WILLIAMSON
Solicitor	A. McF. LIMERICK, Q.C.
Assistant Chief Engineer	L. E. DARGAVEL
Executive Assistant to the General Manager and Information Services	L. D. CORBETT

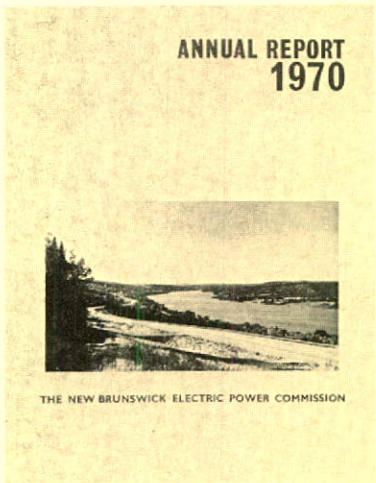
AUDITORS

TOUCHE ROSS & CO.

The New Brunswick
ELECTRIC POWER
Commission

Head Office
Fredericton, New Brunswick

THE COVER



The Mactaquac Headpond Reservoir—A scene familiar to hundreds of thousands of tourists and New Brunswickers travelling the Trans-Canada highway between Fredericton and Woodstock, N.B.

Si vous préférez une version française, nous nous ferons un plaisir de vous la faire tenir à votre demande—
Service d'Informations Commission d'Energie Electrique Du Nouveau-Brunswick,

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1970 ANNUAL REPORT

FOR THE PERIOD OF APRIL 1st, 1969 TO MARCH 31st, 1970

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

June 23, 1970

To His Honour
W. S. Bird
Lieutenant Governor of New Brunswick

May it please your Honour:

The New Brunswick Electric Power Commission begs leave to submit, in accordance with the Electric Power Act, Chapter 41, of Statutes of New Brunswick 1961-62 the following report for the twelve month period ended March 31, 1970.

Your obedient Servant,

H. Graham Crocker, Chairman
The New Brunswick
Electric Power Commission

CHAIRMAN'S FOREWORD

The New Brunswick Electric Power Commission experienced steady growth along with remarkable change throughout the year. In particular, decisions taken in meeting the future electrical requirements of the province involved concepts in technology new to the Commission such as the high voltage direct current converter station at the Eel River Terminal and the higher transmission line voltage associated with the New England interconnection.

The interconnections with New England and Quebec and the agreements entered into with large utilities and power pools have placed the Commission in a strong and more advantageous position as to power exchanges and supply.

During the year one of the earliest distributors of electric power in New Brunswick was acquired by the Commission. All customers of Black's Harbour Power Company Limited were transferred to the Commission in August, 1969.

The Electric Power Act was amended at the 1970 Session of the Legislature redefining "power" and "energy" and providing for a bilingual name. The wording of the Commission's temporary borrowing powers was revised to make the provisions clearer and more flexible; the requirement of government approval for sale of power to a customer in excess of 5,000 kilowatts was removed; and legal obstacles to the Commission co-operating with other neighboring power utilities in joint construction of large and more economic generating capacity were removed.

Upon his appointment to the Public Service Labour Relations Board in July 1969, Mr. Frank X. Crilley terminated his services with the Commission. During his tenure as Commissioner, Mr. Crilley gave unstintingly of his talents. On August 1, 1969, Mr. J. W. O'Brien was welcomed on his appointment as Commissioner.

My sincere thanks are extended to all members of the Commission for their support during the year. In addition, I wish to express my indebtedness to executive management and staff for their loyalty and continued concern for low-cost power and reliable service to our customers.

H. GRAHAM CROCKER,
Chairman

1 Map showing the Maritime Power Pool and New England, indicating the route of the 345,000 volt interconnecting line now under construction.

1

2 Officials of the Central Maine Power Company and N.B. Power signing the interconnection agreement.

2

3 Representatives of New England and Canadian utilities following the signing.

3

REVIEW OF OPERATIONS

ACCOUNTING AND FINANCING

Total revenue amounted to $48,036,037 of which $46,425,514 was from sales of power, an increase of 6.7%. This lower rate of increase over previous years was due for the most part to the standardization of rates which was instituted on April 1, 1969. The adoption of standard rates throughout the province was essential if conformity was ever to be attained and the usual net-gross type of rate established for commercial and residential customers. It was expected that the earning of the net rate would decrease the revenue by about $400,000 before the incentive of a lower end rate became effective. However, a great many customers took advantage of the net and while collections greatly improved, the revenue was reduced by over $900,000. With the present rates and the introduction of estimated and actual readings month about, savings should offset the reduction.

Income from wholesale power was less by $1,086,902 due to direct distribution of service to the former Maritime Electric Company Limited customers for the full year.

Expenditures for purchased power and generation were less by $3,179,230 due to generation by the new Mactaquac hydro station. The 12 month generation by hydro generating stations was $240,000 less than that which would have been generated under normal flows. This amount was credited to Operations.

Note 1 to the Financial statements explains a change in the treatment of charging depreciation and interest on the uncompleted section of the Mactaquac power house which was built to house six units and three only were installed and put in operation. A fourth unit is being manufactured and is planned for operation by April 1972. Canadian Provincial Utilities have adopted a practise of capitalizing very large projects as installation of capacity is completed and so attempt to relate operating costs to income. This practise is now being followed by the Commission and as each of units four, five and six are completed it will bear its share of the cost in relation to the output. For the purpose of calculation it is expected all six units will be in operation in seven years.

Because of the above policy, depreciation charged on the plant was decreased by $197,000 and interest of $882,226 for the year was capitalized.

The surplus for the year was $3,206,088 of which $2,300,000 was appropriated for the water storage equalization account and $400,000 to contingencies with $506,088 added to the surplus account. No consideration was given to increasing any provision for exchange on United States dollars as the recent increase in the value of the Canadian dollar leaves the present reserve with an excess well above the present rate.

During the year the second closing of $5,000,000 7¾% 1994 Sinking Fund Debentures issued in the United States was completed. Another issue of $10,000,000 8½% Canadian Debentures due October 15, 1974, extendible to 1989 was also completed.

Following this issue adequate funds were on hand to meet all capital and other requirements for over eight months.

SOURCES OF REVENUE (1970 percentages)

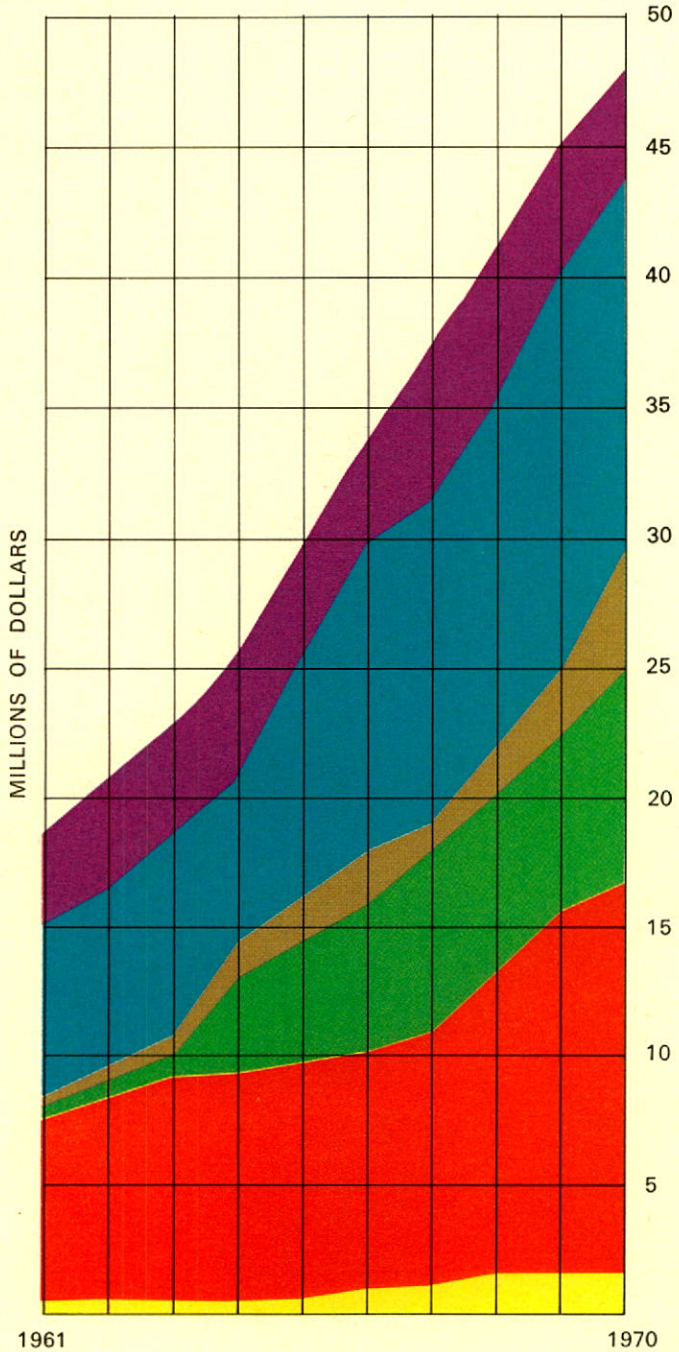
Years ended 31st March 1961-1970

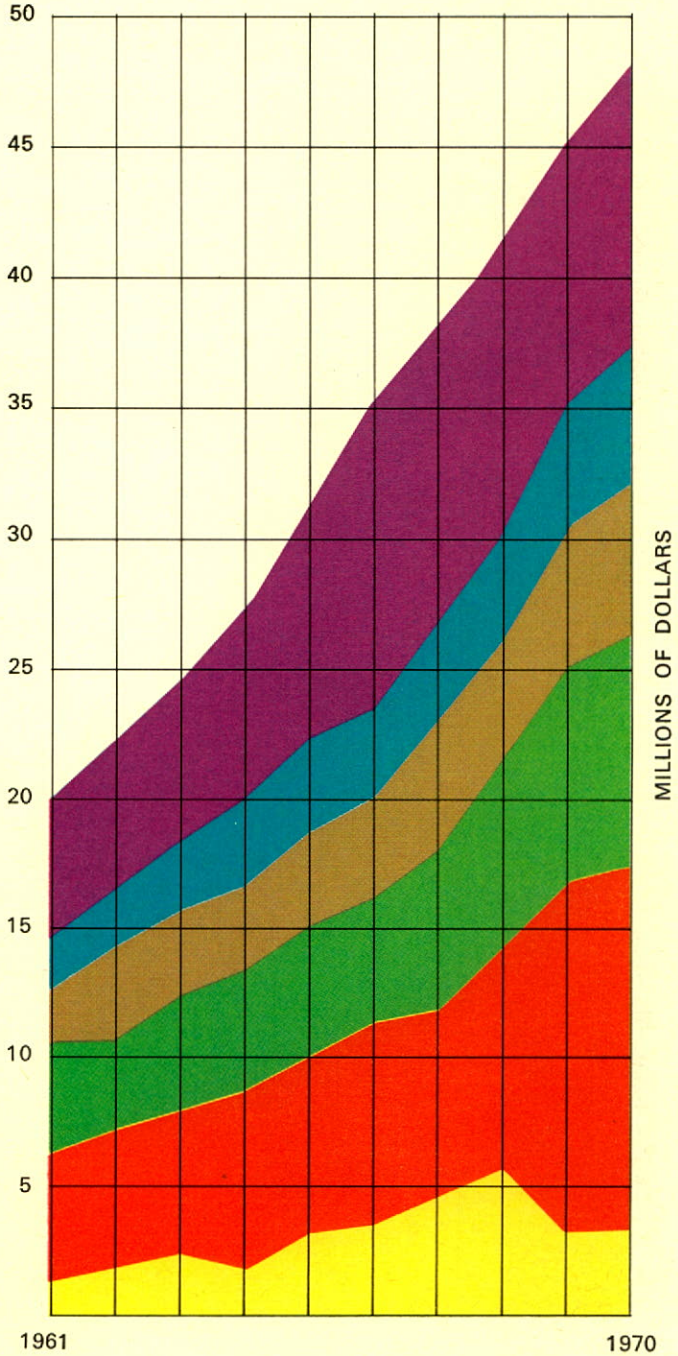
Wholesale	8.7%
Industrial	31.2%
Interconnections	5.6%
Commercial and Street Lighting	19.3%
Residential	31.8%
Steam and Miscellaneous	3.4%

DISTRIBUTION OF REVENUE (1970 percentages)

Years ended 31st March 1961-1970

22.4%	Purchases and Generation
10.9%	Transmission and Distribution
12.2%	Administration
18.3%	Depreciation
29.5%	Interest
6.7%	Transferred to Reserves and Surplus





NOTE: In 1964 a commercial rate according to accepted definition was established and transfers to applicable rates were made during the years 1964-1966. Since then the usual classifications have been used.

CAPITAL ADDITIONS

During the year, two new units were added to the installed generating capacity of the Commission.

At Dalhousie, in the extreme northern part of the Province, a 100,000 kilowatt turbine-generator was commissioned in advance of a public opening scheduled for June 18, 1970. The entirely new station, on a 75 acre site on the Bay of Chaleur is fuelled with "Bunker C" oil. Space is available for more units as load conditions may demand.

In the extreme south-west corner of the province, on the island of Grand Manan, a 890 kilowatt diesel-electric generating set was commissioned in the fall of 1969.

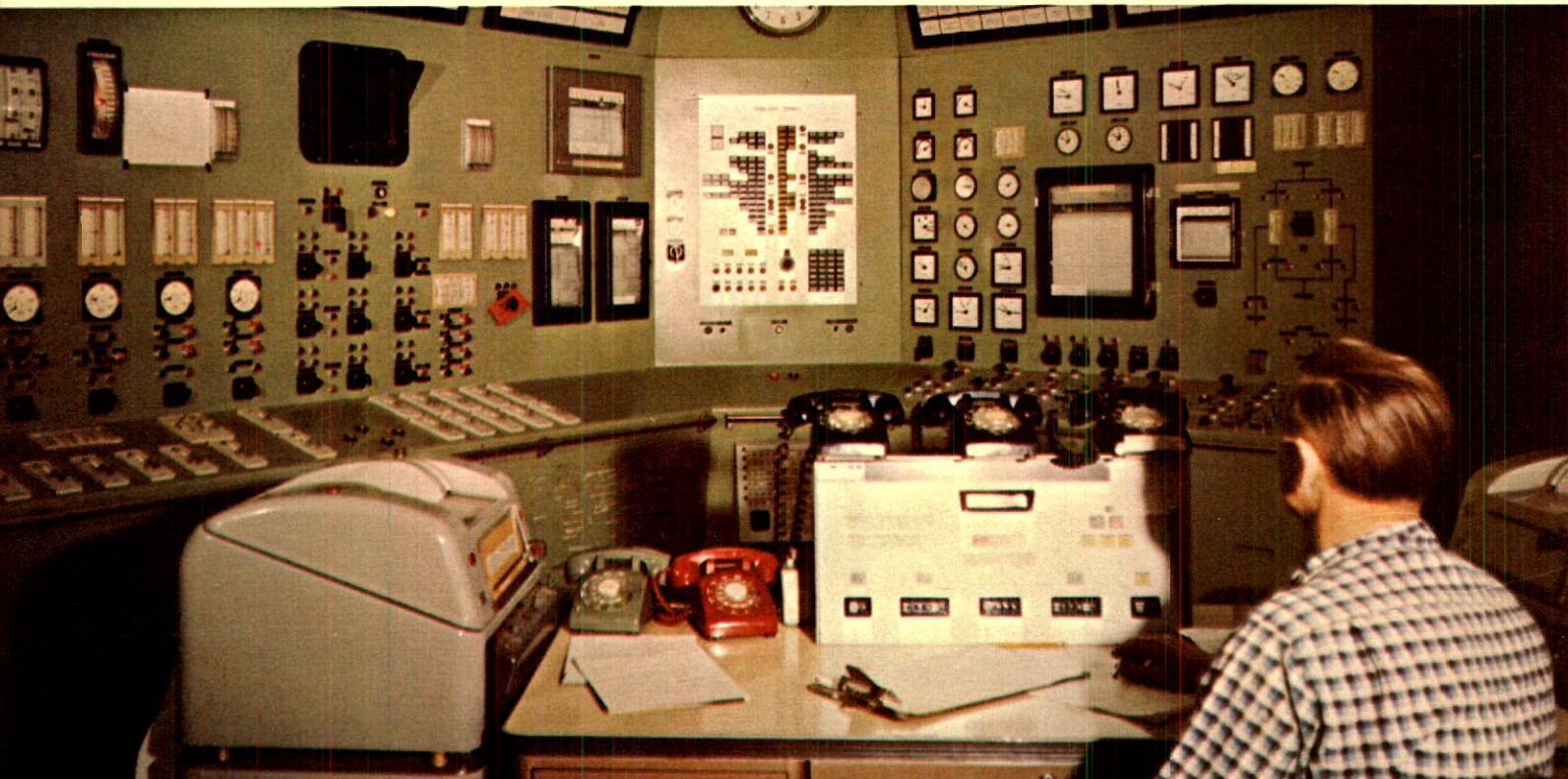
The design, drawings and specifications were completed for site grading of the Eel River High Voltage Direct Current Converter Station. Work has begun on foundation layout and footings for structures and the valve hall of this important addition to the Eel River Terminal.

After a series of negotiations with Black's Harbour Power Company Limited, the Commission acquired the distribution system of the Company. Over 500 customers were involved in the transfer.

A change in the boundaries of the City of Saint John necessitated relocation of the Saint John District office. A new District Office and Stores Building was built in the Rothesay-Renforth area where the majority of the customers are located. The new building, with 2,700 square feet of floor area, was officially opened in November 1969.

During the fiscal year, the programs of upgrading substation capacities to meet present and future needs continued. A new substation was installed to serve an all-electric school in Campbellton. Several existing substations were upgraded, including those at Rothesay, Florenceville, South Bathurst, West Bathurst and Buctouche.

Major transmission lines under construction during the year included the 345,000 volt link with New England. The 48.6 mile line from the Keswick Terminal to the Maine Border will be the first extra high voltage



transmission line built in the Maritimes. Designed by Commission staff, the line will be in operation in late 1970.

Also to be completed in 1970 is the 230,000 volt transmission line from Keswick terminal to Moncton terminal. This line will operate initially at 138,000 volts with provision for extension to Memramcook for eventual 230,000 volt operation.

The 138,000 volt transmission line, Grand Falls to Edmundston, is nearing completion. It will strengthen service to the north-west area of the Province, including the expansion to Fraser Companies' mill at Edmundston.

Capital assets in use at the end of the year amounted to $398,967,053 compared to $371,813,657 at previous year end.

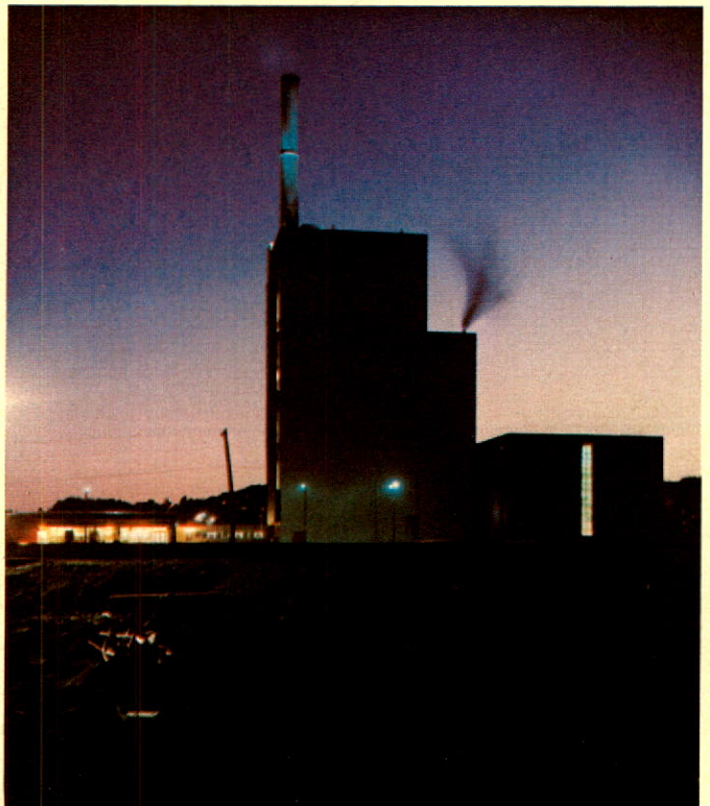
The Commission's installed generating capacity as of March 31, 1970 totals 1,032,286 kilowatts.

1 Control Room—Dalhousie Generating Station

2 The addition of the Dalhousie Generating Station places system capacity over one million kilowatts.

3 Gulfport Type Structure—the first of this type constructed in the Maritimes—230,000 volt transmission line from Keswick to Moncton Terminals.

2



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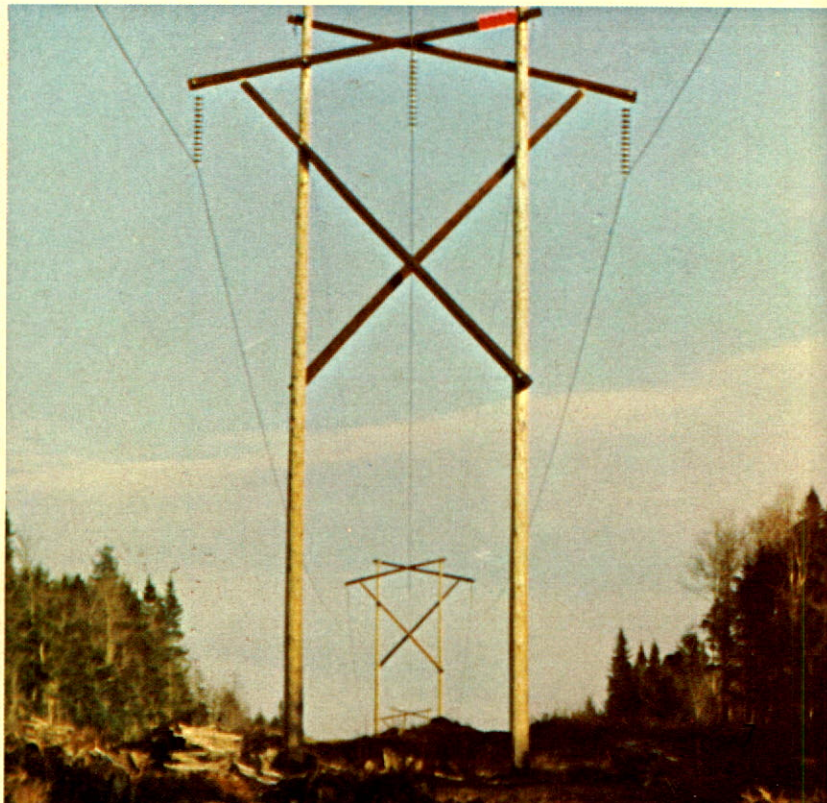


PLANNING AND OPERATIONS

Total generation and purchases to meet load requirements amounted to 4,196,431,200 kilowatt hours, an increase of 8.8% over the previous year. Total delivery to all customer classifications increased 10.7% to 3,764,962,120 kilowatt hours.

Peak system load requirements within New Brunswick amounted to 606,700 kilowatts in December 1969. Exports increased the total interconnected system peak to 744,100 kilowatts. These peak demands differed little from corresponding peaks for the previous year due to more severe weather conditions and a firm export of 75,000 kilowatts to Hydro-Quebec in December 1968.

In April 1969, three new standardized rates were introduced to serve residential customers in cities, towns and villages, and all other areas of the province including summer cottages. The rates are similar, differing only in the first block of kilowatt hours and minimum bill. Under the new schedule all areas of the province are treated uniformly.

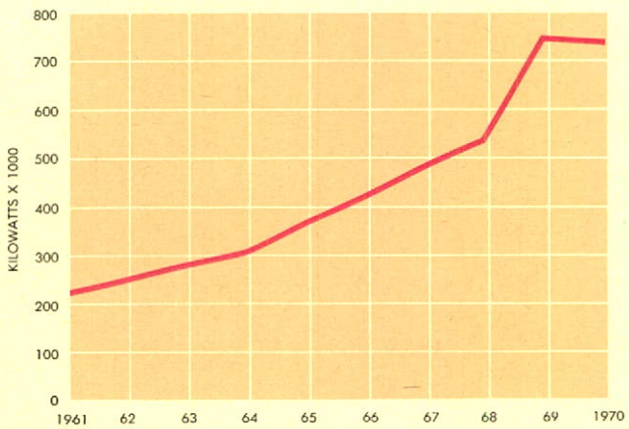
Extremely close co-operation with industry has resulted in placing industrial customers on our standard Class I, II, III, and IV rates. Also, Industrial Development Grants under the Atlantic Provinces Power Development Act having ceased during the year, the Commission absorbed the grant payments for Class II, III and IV customers by replacing the grant with a prompt payment discount.

It was a busy and challenging year in power supply planning for the future. To facilitate delivery of the large blocks of power during the period 1971 to 1976 from Hydro-Quebec, a high voltage direct current converter station will be constructed as an extension to the Eel River Terminal through a contract with the Canadian General Electric Company. Special financial arrangements have been made to permit the Company to carry out research work with the Commission on the 320 MW station until 1978 in the interest of this new technology. Hydro-Quebec will construct a 180 mile double circuit 315,000 volt line to deliver the power to the New Brunswick border.

Discussions with utilities in New England over a period of two years culminated in the signing on August 14, 1969 of a 25 year interconnection agreement between the Commission and Central Maine

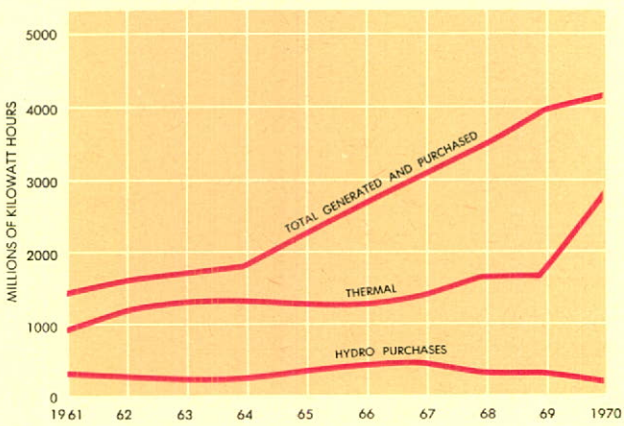
Figures are for fiscal years ending March 31.

POWER REQUIREMENTS AND EQUIVALENT RATE OF GROWTH



RATE OF GROWTH - 12.9%
compounded over period shown

KILLOWATT HOURS GENERATED AND PURCHASED



Power Company. This major interconnection will be accomplished by a 345,000 volt line now under construction from the Keswick Terminal to the International Border and will have a capacity in excess of 400,000 kilowatts.

During the year, orders were placed for the fourth turbine, generator and auxiliary equipment for the Mactaquac Generating Station. This unit will have great significance for the system at periods of peak demand and fit in well in operation of the newly developed interconnections.

In the Saint John River drainage area, Beechwood, Tobique and Sisson hydro-electric generating stations are now operated from the Grand Falls Generating Station. During the year all components of the system, generation, transmission and distribution, functioned at top performance. A major exception occurred during the first week of February when a province-wide storm created flood damage on several river systems, notably the Nashwaak, Miramichi and Oromocto rivers. Substantial transmission and distribution line damage in excess of $200,000 resulted.

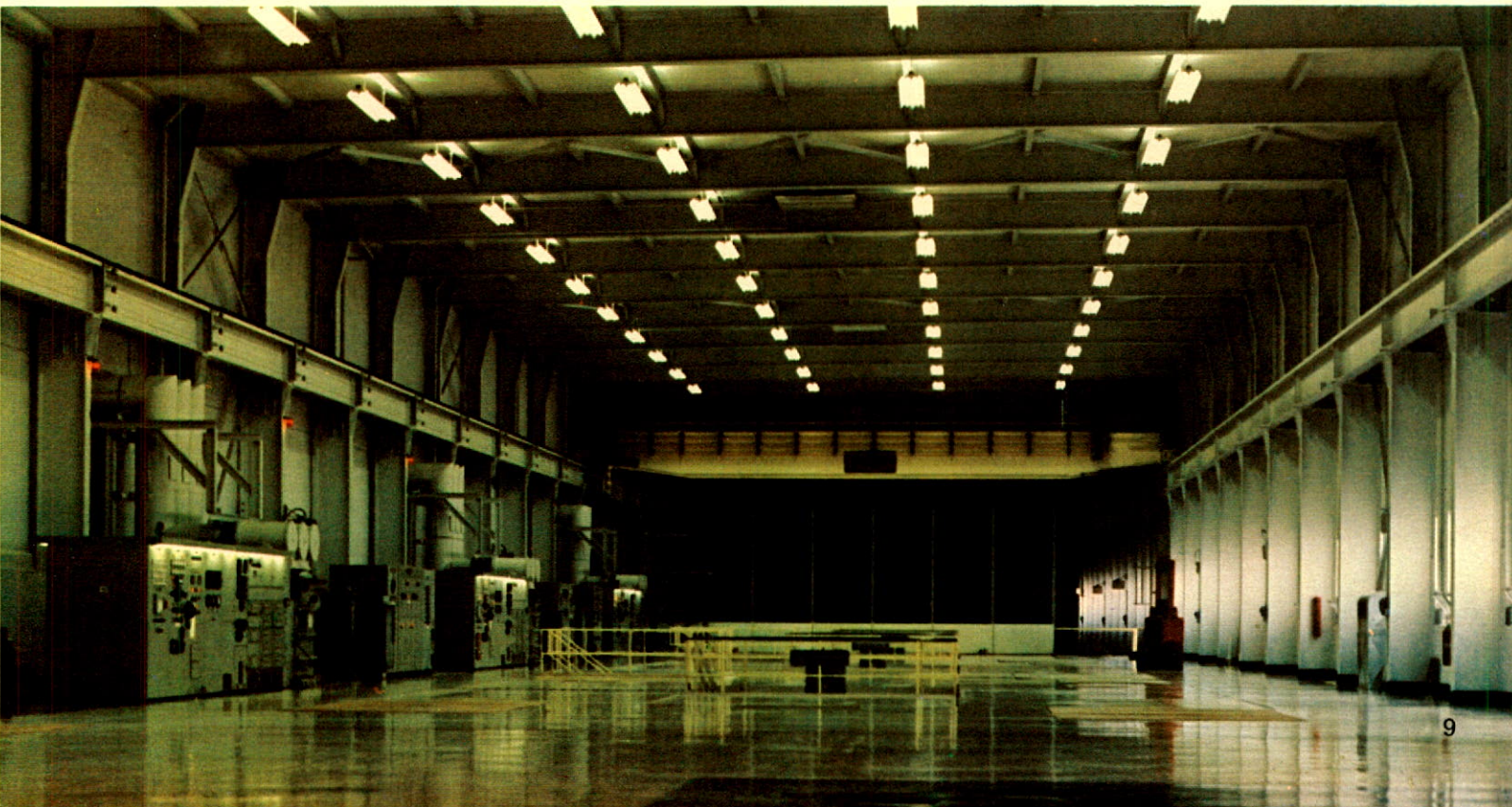
The Atlantic Tidal Power Programming Board submitted its report during the year on the possibilities of economic power development from the Bay of Fundy tides. The Board was appointed in August 1966 following the adoption of an Agreement by the governments of Canada and of the Provinces of New Brunswick and Nova Scotia.

The Board concluded that the economic development of tidal power in the Bay of Fundy is not feasible under prevailing circumstances, i.e., under current interest rates of money and current costs of construction and of generating equipment. It recommended additional detailed studies be authorized when these circumstances change or when pollution abatement requirements magnify, substantially, the cost of using alternative sources of power or when alternative sources of a more economic power supply become exhausted.

The Board researched fully all previous investigations for tidal power and provided a wealth of new information on the physical and tidal characteristics of the Bay of Fundy. This area is one of the most spectacular examples in the world of tidal phenomena for power developments and many alternative sites were outlined in the report as technically feasible. The data accumulated on foundation and site studies, hydraulics, power markets and transmission is invaluable; in addition, it provides to the Commission a means of comparison and evaluation in its studies of alternatives to provide economic power and energy to the Province of New Brunswick.

Commission personnel actively participated in the studies at the Board and Engineering levels.

An interior view of the Mactaquac Station, looking toward the location of the fourth unit scheduled to be producing power early in 1972.



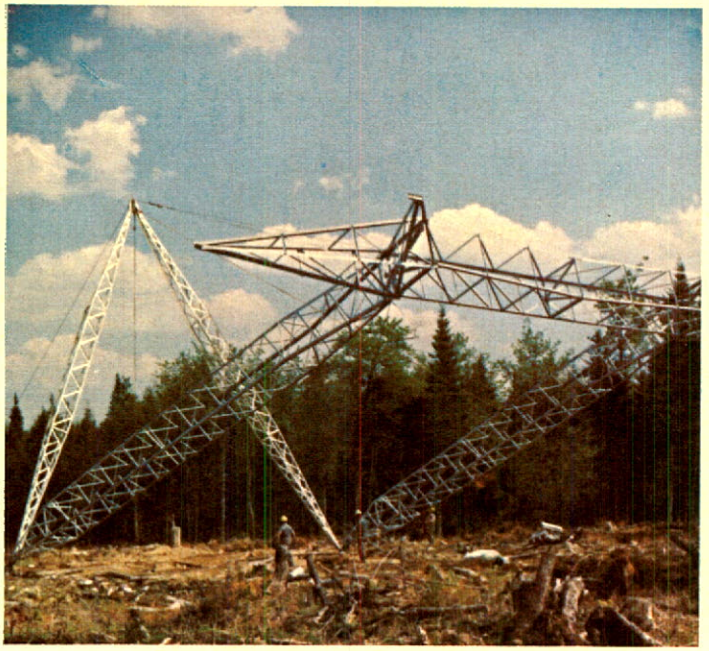
1 Guyed Portal Structure—345 KV Keswick Terminal to the Maine Border—being erected.

2 Solid state high voltage direct current valves for the HVDC Station at the Eel River Terminal, largest of its kind in the world.

3 Guyed Portal Structure in upright position—one of 217 steel towers for the interconnecting line to New England—scheduled for completion in late 1970.

4 A Senior Citizens' Home in New Brunswick, employing the all-electric concept of comfortable, safe and economical living; one of a growing number.

1



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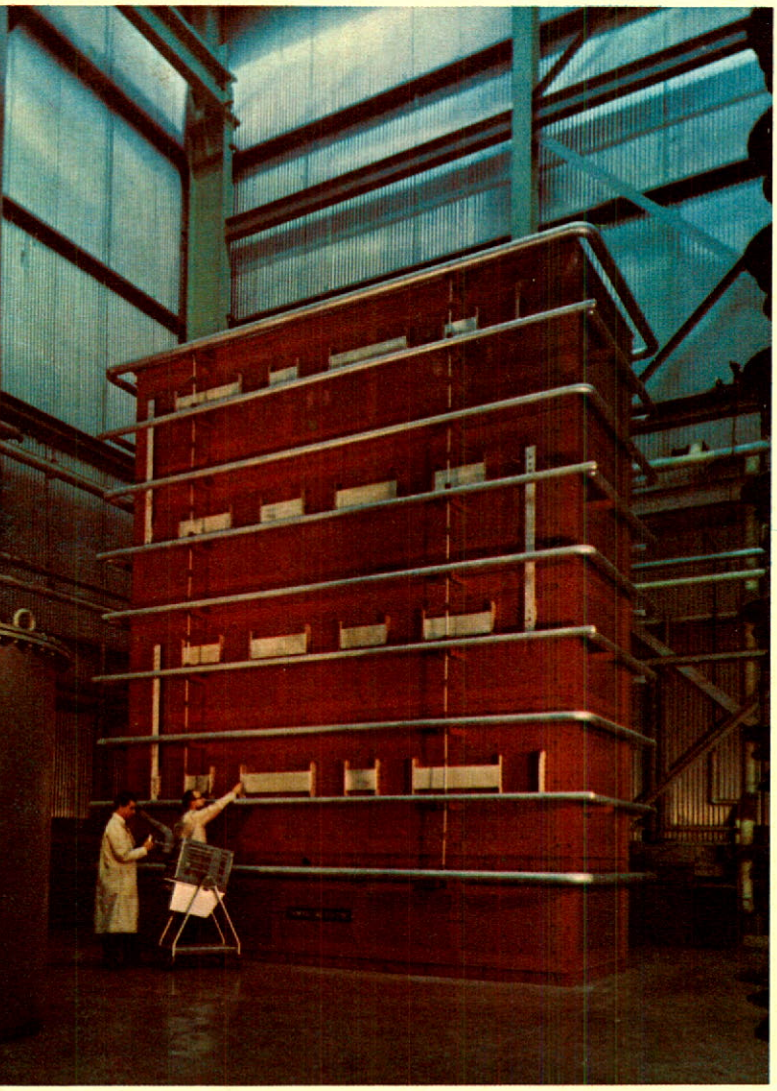

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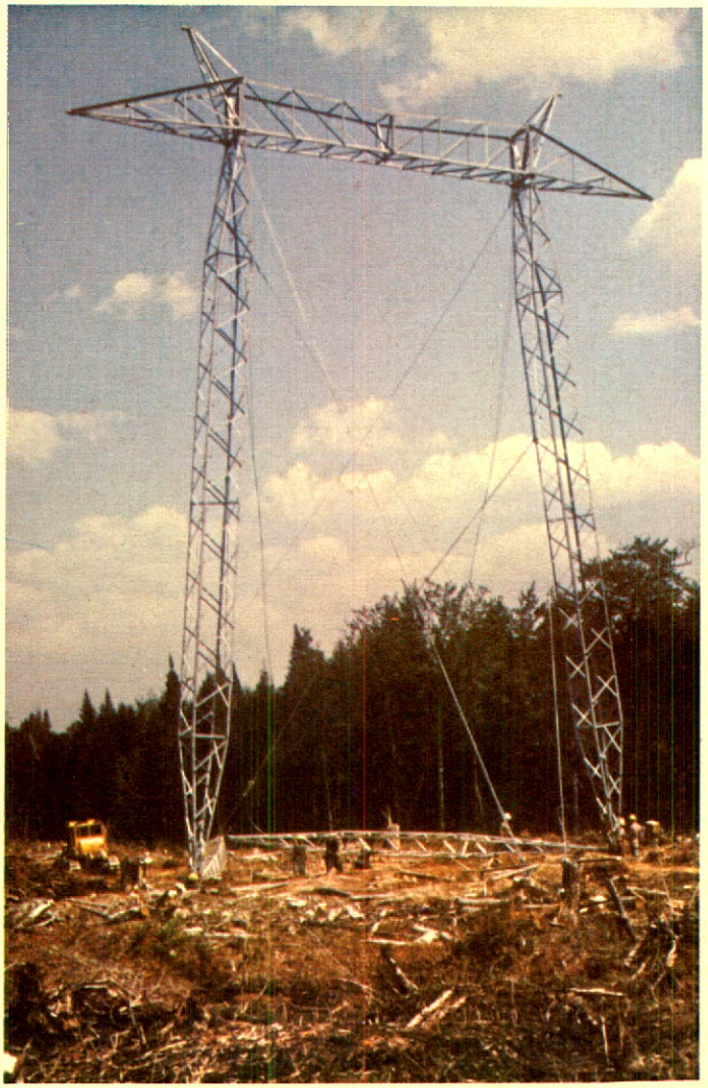


SALES

Figures are for fiscal years ending March 31.

Firm Sales of electric energy increased by 217,459,000 kilowatt hours or 9.1% as a result of Sales Promotion activities by the Commission in residential and commercial markets, and as a result of growth in the industrial economy of the Province.

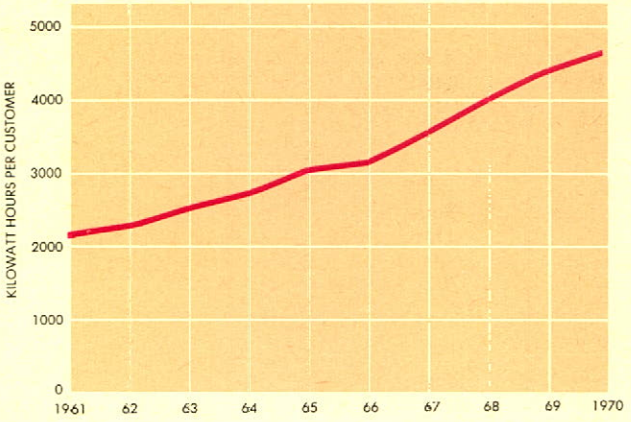
In the residential field, increased sales resulted in the average consumption per customer rising by 6.6% to 4,620 kilowatt hours.

Contributing to this growth was continued enthusiastic acceptance of the Commission's Home Wiring Finance Plan, and the "Cascade" Water Heater and "Sentinel" Dusk-to-Dawn Light rental plans. Water heater installations increased by 4,375 to a total of 24,095 and the Dusk-to-Dawn lights by 1,460 to a total of 5,744.

Electric Heating gained solid acceptance in all fields. All-electric homes and apartments reached 1,897 by year-end of which 1,184 were all-electric individual homes. All-electric installations in motels, schools, stores and offices for both industrial and commercial buildings attained acceptance and some interesting designs came about as a result of the freedom resulting from using this flexible method of heating and cooling.

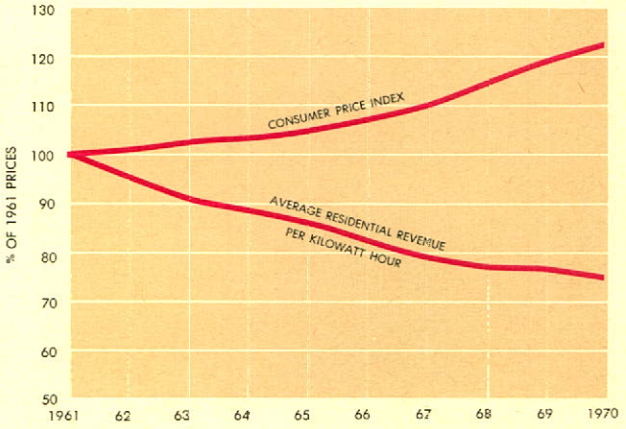
Large power users showed a healthy growth throughout the year. Increases in industrial load of a major nature are assured for the coming year with plants under construction in the pulp and paper and mining industries that will add over 100,000 kilowatts of high load factor load to the Commission's system.

ANNUAL RESIDENTIAL CONSUMPTION



Average usage per residential customer has more than doubled in 10 years, at a rate well in excess of the national average.

AVERAGE RESIDENTIAL REVENUE COMPARED WITH CONSUMER PRICE INDEX



The economy of operation and increased usage has reduced the unit cost of electricity to residential customers by almost 50% in 10 years.

SALES AT A GLANCE

Electrically heated dwelling units reached 1,897 by year-end—1,184 individual homes and 713 apartments.

Electric Water heater installations increased by 4,375 units—an increase of 22%.

Dusk to Dawn (Sentinel) light rentals now number 5,744—an increase of 34%.

Total firm sales within the province increased by 217,459,000 kilowatt hours or 9.1%.

Average annual kilowatt hour consumption per residential customer increased by 6.6% to 4,620 kilowatt hours.

Customers (all classes) now number 144,702—an increase of 3.2%.

1 Through the convenient and inexpensive installation of electric heat in summer cottages, a rapidly increasing number of New Brunswick citizens have access to year around outdoor recreational activities.

2 The Commission is actively promoting the installation of electric space heating in residences. The home shown above has been converted to this type of heating.

3 The cleanliness and efficiency of electric heat combined with modern lighting typify the trend in design of institutional dining areas.

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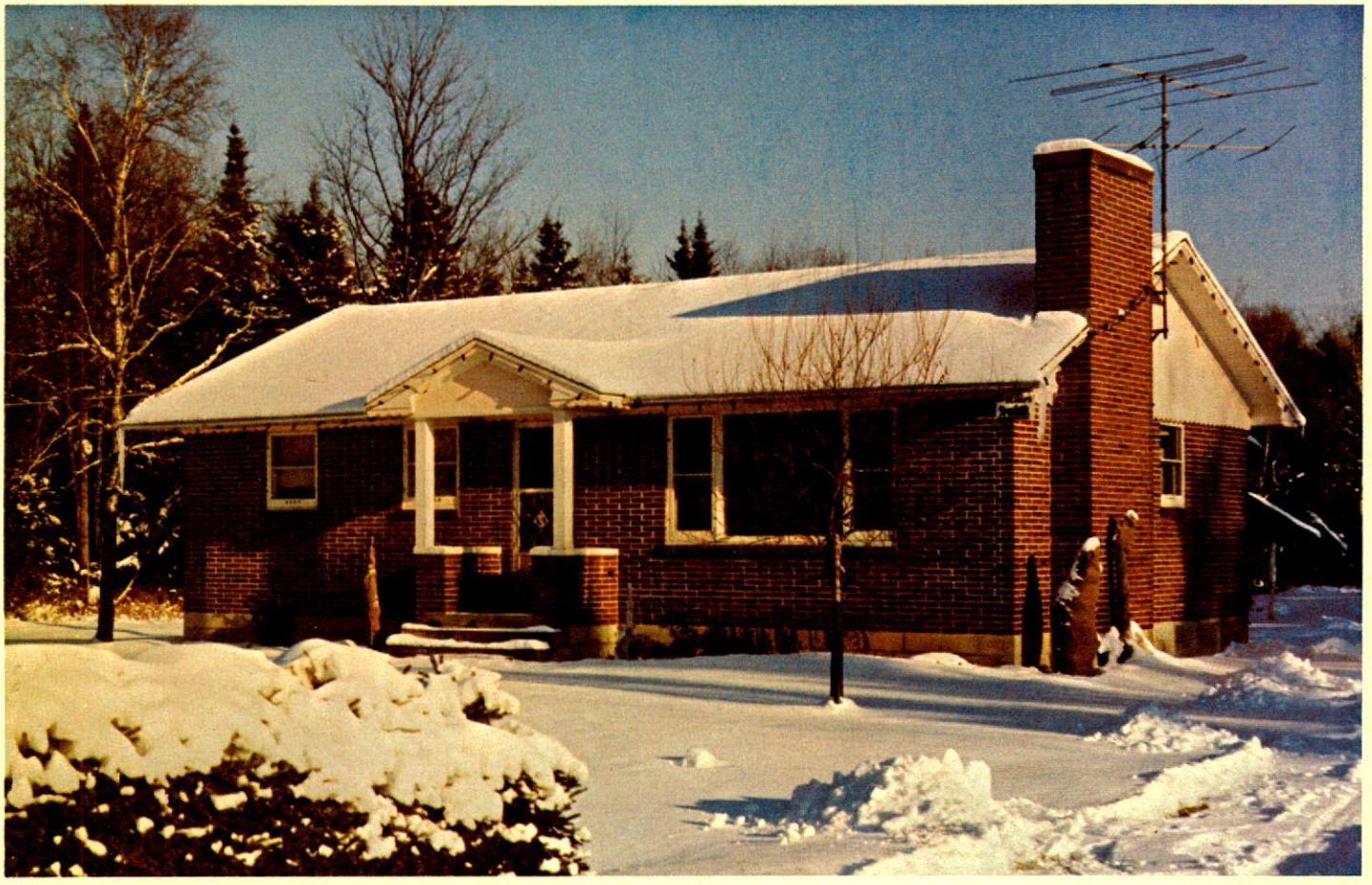

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STAFF

The Commission again committed itself to hold the total complement of staff at a constant level. This has been accomplished by introduction of new personnel policies, training programs, tours of duty, etc. At the end of the fiscal year regular employees totalled 1,415 compared to 1,413 as of March 31, 1969.

Staff development and educational training programs continued with 64 employees reaching journeyman status during the year. In addition to those on staff development and management training programs, 49 employees were enrolled in the Management by Objectives course.

On May 28, 1969 the Commission and System Council U-28 of the International Brotherhood of Electrical Workers, A.F. of L., signed an agreement on behalf of the unionized classifications of workers within the Commission. The agreement, for two years, will expire on December 31, 1970.

During the year mutual trust and understanding was maintained between both parties as a result of periodic Labour-Management Meetings.

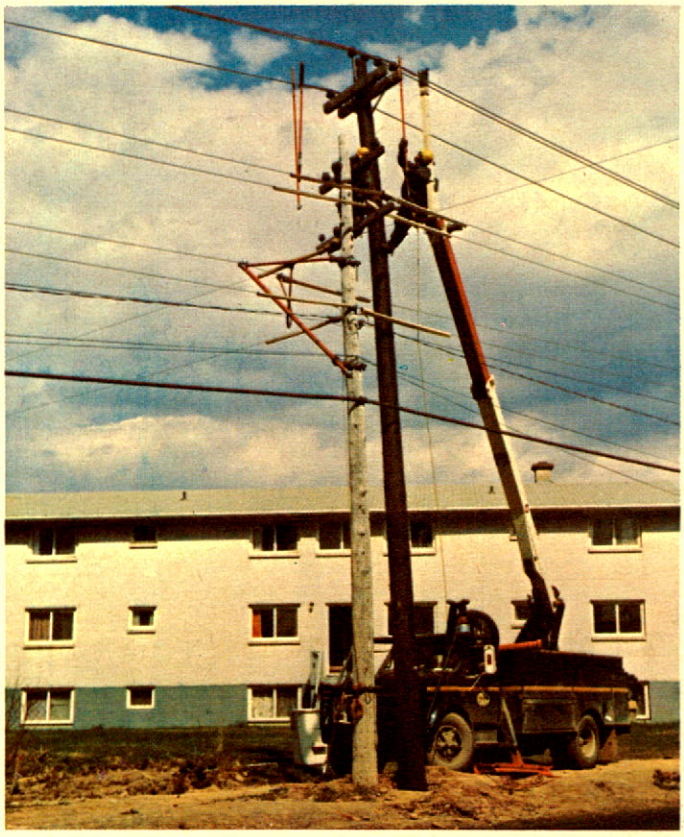
1

1 Cleaning up after one of New Brunswick's worst winter storms.

2 A power line rebuild to meet heavier demands.

3 N.B. Power engineering staff meeting with Hydro-Quebec representatives and the equipment manufacturer on the High Voltage Direct Current Converter Station.

2



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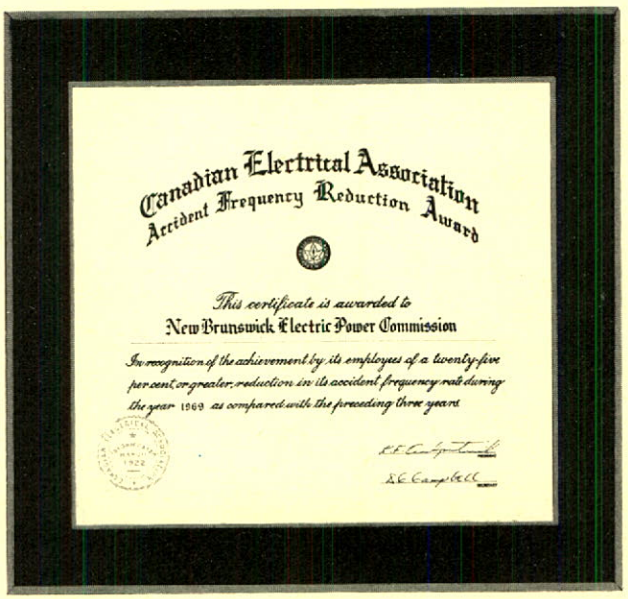
In accident prevention, the Commission again in 1969 won recognition in the electrical industry. Its disabling frequency rate compared most favourably with the best frequency rates being earned throughout the electrical industry both in Canada and the United States.

For the second year in a row the Commission was awarded the Canadian Electrical Association Accident Frequency Reduction Award which reads : "In recognition of the achievement by its employees of a 25% or greater, reduction in its accident frequency rate during the year 1969 as compared with the preceding three years". The Commission and one other utility in Canada qualified for the award. Only utilities employing over 500 people, of which there were thirteen, were eligible for this award.

We are proud of the recognition accorded to us by this award.

Another outstanding accomplishment in accident prevention was achieved during the construction of the Dalhousie Generating Station. During the entire construction of Dalhousie, there was but one minor accident that caused one employee a ten-day loss of time. In the construction of a project of this size, the odds are heavy that serious accidents, perhaps even fatalities might occur.

All the skills of management and labour were co-ordinated for highest efficiency in these accomplishments.



H. GRAHAM CROCKER
Chairman

A. J. O'CONNOR
General Manager

STATEMENT OF GENERATION AND SALES
FOR THE FISCAL YEAR ENDED 31 MARCH 1970

	1970 Kilowatt Hours	1969 Kilowatt Hours	Difference Kilowatt Hours	%
GENERATION				
Hydro	2,615,497,300	1,303,084,500	1,312,412,800	100.7
Thermal	1,526,031,000	2,344,082,000	818,051,000	–34.9
Diesel	6,241,280	5,277,420	963,860	18.3
Purchases	48,661,620	204,091,590	155,429,970	–76.2
Gross Generation and Purchases	4,196,431,200	3,856,535,510	339,895,690	8.8
Station Service	106,472,360	133,583,940	27,111,580	–20.3
Net Generation and Purchases	4,089,958,840	3,722,951,570	367,007,270	9.9
Losses—Transformer and Transmission	244,181,870	241,013,250	3,168,620	1.3
Losses—% of Net Generation and Purchases	6.0	6.5		
Total Energy Distribution	3,845,776,970	3,481,938,320	363,838,650	10.4
SALES				
Wholesale	307,735,880	375,881,860	68,145,980	–18.1
Interconnections	643,925,600	442,601,180	201,324,420	45.5
Industrial Power	1,821,594,010	1,775,133,080	46,460,930	2.6
Commercial (11,071 Customers)	364,817,590	272,104,520	92,713,070	34.1
Residential (131,473 Customers)	607,267,900	514,388,730	92,879,170	18.1
Average Revenue Per Commercial KWH	2.21¢	2.23¢		
Average Revenue Per Residential KWH	2.54¢	2.71¢		
KWH Per Residential Customer	4,620	4,334	286	6.6
Street lights	19,621,140	14,454,360	5,166,780	35.7
Total Sales	3,764,962,120	3,394,563,730	370,398,390	10.9
Station and Internal Use	123,226,870	141,206,720	17,979,850	–12.7
Total Losses	308,242,200	320,765,060	12,522,860	– 3.9
Gross Generation and Purchases	4,196,431,200	3,856,535,510	339,895,690	8.8

AUDITORS' REPORT

The Honourable Louis J. Robichaud, Q.C.,
Premier of the Province of New Brunswick,
Fredericton, N.B.

Sir:

We have examined the balance sheet of The New Brunswick Electric Power Commission as at 31 March 1970 and the related statements of operations and surplus and source and application of funds for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Commission as at 31 March 1970 and the results of its operations and the source and application of its funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year, except for the change in depreciation and interest, with which we concur, as outlined in Note 1 to the financial statements.

TOUCHE ROSS & CO.
Touche Ross & Co.
Chartered Accountants

Saint John, N.B.
June 23, 1970

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

BALANCE SHEET AS AT 31 MARCH 1970

(with comparative figures for 1969)

ASSETS

	1970		1969	
FIXED ASSETS — Note 1				
Land, buildings, plant and equipment at cost, less accumulated depreciation (Schedule 1)		$320,233,493		$310,316,383
CURRENT ASSETS				
Cash and short-term investments	$15,997,302		$13,688,629	
Accounts receivable	6,582,362		6,417,463	
Due from Northern Canada Power Commission	313,209		2,198,768	
Material, supplies and fuel, at cost	3,005,720		2,254,310	
Prepaid expenses	277,407		201,939	
		26,176,000		24,761,109
Mortgages and Deferred Accounts Receivable		406,350		489,744
DEFERRED CHARGES				
Debenture discount and issue expenses, less amounts amortized	4,651,692		4,839,430	
Survey and engineering expenses in connection with expansion of facilities	789,296		536,176	
		5,440,988		5,375,606
INSURANCE FUND				
Cash and investments, at cost		1,296,978		1,295,416
		$353,553,809		$342,238,258

ON BEHALF OF THE NEW BRUNSWICK ELECTRIC POWER COMMISSION:

H. GRAHAM CROCKER, E.D., Chairman

J. V. CLAUDE SAVOIE, Vice-Chairman

LIABILITIES

	1970		1969	
FUNDED DEBT				
Debentures issued by the Commission guaranteed by the Province of New Brunswick (Schedule 2)		$207,980,609		$197,891,937
LOANS FROM THE PROVINCE OF NEW BRUNSWICK (Schedule 3)		33,950,131		39,028,029
LOANS FROM NORTHERN CANADA POWER COMMISSION				
For capital expenditures on approved projects as provided under the Atlantic Provinces Power Development Act (Schedule 4)		60,941,479		55,394,870
CURRENT LIABILITIES				
Accounts payable and accruals	$13,617,468		$14,043,712	
Accrued interest on debentures issued by the Commission	4,268,992		3,911,070	
Province of New Brunswick—Accrued interest	530,681		557,394	
Other	90,395		99,827	
Holdbacks on contracts in progress	1,118,483		3,974,808	
Service deposits	307,891		242,876	
		19,933,910		22,829,687
DEFERRED—Contributions from customers in aid of construction, repayable over a period of years in accordance with terms of agreements		392,164		67,225
RESERVES (Schedule 5)		25,055,198		22,232,280
SURPLUS		5,300,318		4,794,230
		$353,553,809		$342,238,258

1. During the current year the Commission reviewed and changed its accounting practice with respect to its large Mactaquac Hydro project in order to conform to current Canadian Public Utility practice of deferring charges related to future units.

   The depreciation calculated by this method assumes a higher proportionate cost for the initial units and is charged as each unit is installed. For purposes of calculation the completion date of all units is set at 1977. This change in policy resulted in a reduction in depreciation for the year of $197,000.

   In addition, interest on costs incurred to date for future units has been capitalized thus reducing the charge to operations for the current year by $882,226.

2. The Commission received a claim in February 1968 from Mactaquac Constructors (a joint venture) for additional costs in the provisional total of $8,315,026 in connection with the Mactaquac Hydro Electric Development project. The amount was subsequently increased on 8 April 1969 to $10,276,844 after submission of the claim by the Contractor to arbitration under the contract. The hearings before the arbitrators were commenced on 21 April, 1969. On 8 May, 1969 a further amendment to the claim was received which increased the amount to $16,871,548. After detailed studies by engineering consultants to the Commission and the Engineer under the contract, it appears that some part of the original claim may be valid but the Commission is of opinion that the major part of the claim and particularly the latter revisions upward in the quantum of claim are not only inflated, but have little or no merit. An amount has been recorded in the accounts which the Commission considers will be sufficient to provide for any settlement resulting from arbitration.

3. The unexpended balance of approved capital expenditures at 31 March, 1970 amounted to approximately $9,569,367. Canada has agreed to give financing assistance for $354,980 of this amount through Northern Canada Power Commission.

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

BALANCE SHEET SCHEDULES

As at 31 March 1970

(with comparative figures for 1969)

	1970			1969		
Sales of power, less discounts						
Wholesale		$ 4,118,458			$ 5,205,360	
Industrial		23,024,979			20,865,185	
Interconnections		2,681,174			2,535,645	
Street lighting		1,169,014			936,033	
Retail		15,431,889			13,961,200	
		46,425,514			43,503,423	
Sales of steam		927,180			932,520	
Miscellaneous income		683,343			587,314	
			$48,036,037			$45,023,257
Expenditure						
Purchased power	$ 213,497			$ 1,345,843		
Operating and maintenance expenses						
Generation	10,319,087			12,605,971		
Transmission	787,528			817,698		
Distribution	4,466,289	15,786,401		3,817,758	18,587,270	
Administrative and other expenses, less amounts capitalized		5,834,572			5,493,374	
Interest, exchange and amortization of debenture discount and expenses	17,481,195			16,124,040		
Less income from sinking fund assets	1,260,826			1,099,429		
	16,220,369			15,024,611		
Less amounts capitalized—Note 1	2,045,955	14,174,414		779,471	14,245,140	
Provision for depreciation of buildings, plant and equipment—Note 1	8,794,562			8,500,091		
Provision for heavy maintenance	—	8,794,562	44,589,949	360,000	8,860,091	47,185,875
Surplus (loss) for the year before adjustment for water storage equalization			3,446,088			(2,162,618)
Adjustment to equalize generation costs due to fluctuation in water storage levels			240,000			4,519,000
Surplus for the year			3,206,088			2,356,382
Appropriations of surplus to reserves for						
Water storage equalization		2,300,000			1,219,000	
Exchange on funded debt payable in United States dollars		—			150,000	
Contingencies and rate stabilization		400,000	2,700,000		499,400	1,868,400
Balance added to surplus account			506,088			487,982
Surplus at beginning of year			4,794,230			4,306,248
Surplus at end of year			$ 5,300,318			$ 4,794,230

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

STATEMENT OF SOURCE AND APPLICATION OF FUNDS

For the Year Ended 31 March 1970

(with comparative figures for 1969)

	1970	1969
SOURCE OF FUNDS		
From operations		
Surplus for the year	$ 3,206,088	$ 2,356,382
Amounts charged against operations but not requiring outlay of funds:		
Provision for		
Depreciation of buildings, plant and equipment—Note 1	8,794,562	8,500,091
Vehicle depreciation	621,442	521,350
Heavy maintenance	—	360,000
Amortization of debenture discount and expenses	364,410	360,392
Adjustment to equalize generation costs due to fluctuation in water storage levels	240,000	(4,519,000)
Survey and engineering expenses written off	149,050	28,128
	13,375,552	7,607,343
Proceeds from debentures issued less discount and expenses	13,214,812	11,561,160
Loans from Northern Canada Power Commission	6,093,695	14,042,015
Insurance fund investment income	73,772	67,357
Miscellaneous credits to contingency reserve—net	—	69,875
Repayment of mortgages and deferred accounts receivable—net	83,394	39,647
Contributions from customers in aid of construction—net	324,939	31,990
Decrease in working capital	—	8,377,932
	$33,166,164	$41,797,319
APPLICATION OF FUNDS		
Expenditure on fixed assets	$19,526,449	$30,365,306
Sinking fund instalments	2,327,226	5,680,415
Reduction in loans from		
Province of New Brunswick	5,662,000	4,260,000
Northern Canada Power Commission	547,086	446,529
Premium on debentures redeemed in United States dollars	185,790	338,267
Deferred survey and engineering expenses	402,170	339,443
Increase in insurance fund	1,562	42,357
Expenditures charged to reserves		
Heavy maintenance	—	273,499
Storm damage	125,591	26,503
Self-insured damages	57,765	25,000
Miscellaneous	19,857	—
Increase in working capital	4,310,668	—
	$33,166,164	$41,797,319

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION

STATEMENT OF OPERATIONS AND SURPLUS

For the Year Ended 31 March 1970

(with comparative figures for 1969)

SCHEDULE 1—FIXED ASSETS—AT COST

	1970	1969
Land, buildings, plant and equipment		
Power generating stations	$260,084,399	$239,350,001
Transmission system	41,767,450	41,128,387
Substations	30,139,051	27,845,702
Distribution system	57,029,505	54,132,363
Other properties	4,509,252	4,153,872
Communications equipment	584,559	610,107
Motor vehicles and miscellaneous equipment	4,852,837	4,593,225
	398,967,053	371,813,657
Construction in progress—Note 1	10,490,700	20,729,209
	409,457,753	392,542,866
Less Atlantic Development Board grant for Mactaquac Development	20,000,000	20,000,000
	389,457,753	372,542,866
Less accumulated depreciation—Note 1	69,224,260	62,226,483
	$320,233,493	$310,316,383

SCHEDULE 2—SINKING FUND DEBENTURES ISSUED BY THE COMMISSION

	1970	1969
Principal and interest payable in Canadian funds		
8½% maturing 15 October 1974 exchangeable at the option of the holder to 15 April 1974 for 8½% debentures maturing 15 October 1989	8,000,000	—
5½% maturing 15 March 1987	$ 2,650,000	$ 2,650,000
5½% maturing 1 November 1988	2,000,000	2,000,000
5¾% maturing 1 July 1991	5,000,000	5,000,000
5½% maturing 15 March 1992	7,350,000	7,350,000
5½% maturing 1 November 1993	6,000,000	6,000,000
5½% maturing 15 June 1994	10,000,000	10,000,000
5½% maturing 31 December 1994	3,790,000	3,790,000
6¼% maturing 1 May 1995	15,000,000	15,000,000
5¾% maturing 15 October 1995	7,500,000	7,500,000
6 % maturing 1 January 1996	13,800,000	13,800,000
6 % maturing 1 March 1996	4,000,000	4,000,000
6½% maturing 1 October 1996	6,100,000	6,100,000
5½% maturing 31 December 1999	8,210,000	8,210,000
	99,400,000	91,400,000
Less sinking fund assets held in trust by the Province of New Brunswick	7,894,391	6,032,063
	91,505,609	85,367,937
Principal and interest payable in United States funds—		
7¾% maturing 1 February 1974	5,000,000	5,000,000
5¼% maturing 2 January 1986	11,715,000	12,121,000
5¼% maturing 1 November 1986	5,004,000	5,303,000
5¼% maturing 1 September 1987	7,256,000	7,600,000
5 % maturing 15 April 1990	15,000,000	15,000,000
5½% maturing 1 May 1991	15,000,000	15,000,000
6 % maturing 15 November 1991	17,500,000	17,500,000
6½% maturing 15 October 1992	15,000,000	15,000,000
6⅞% maturing 15 February 1993	15,000,000	15,000,000
7¾% maturing 1 February 1994	10,000,000	5,000,000
	116,475,000	112,524,000
	$207,980,609	$197,891,937

SCHEDULE 3—LOANS FROM THE PROVINCE OF NEW BRUNSWICK	1970	1969
For which debentures have been issued by the Province to provide funds for the Commission (payable in United States funds 1970—$14,692,000; 1969—$15,366,000)	$48,316,500	$53,978,500
Less sinking fund assets held by the Province relating to such debentures	14,366,369	14,950,471
	$33,950,131	$39,028,029

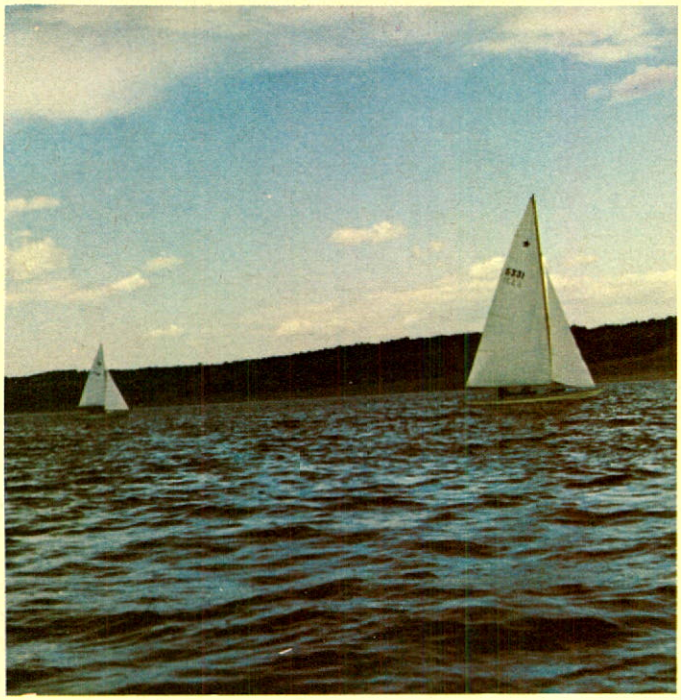
SCHEDULE 4—LOANS FROM NORTHERN CANADA POWER COMMISSION FOR CAPITAL EXPENDITURES ON APPROVED PROJECTS AS PROVIDED UNDER THE ATLANTIC PROVINCES POWER DEVELOPMENT ACT		
Completed projects, less instalments paid—principal plus interest at rates ranging from 4½% to 8⅛% per annum payable in annual instalments to 2009	$55,821,015	$36,482,903
Completed projects - principal plus interest payable in forty annual instalments when the projects are formally accepted by Northern Canada Power Commission	1,596,499	—
Projects in progress	3,523,965	18,911,967
	$60,941,479	$55,394,870

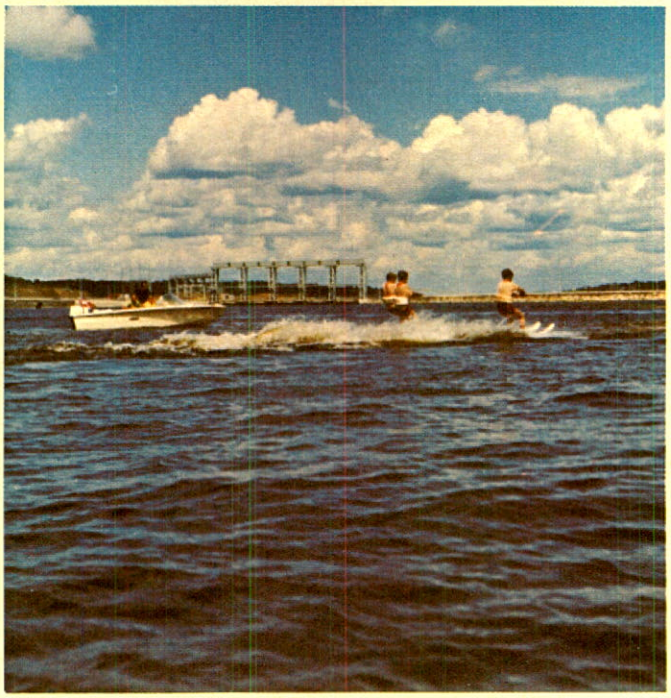
SCHEDULE 5—RESERVES		
Insurance	$ 1,296,978	$ 1,295,416
Exchange on funded debt payable in United States dollars	8,209,181	8,003,488
Contingencies and rate stabilization	13,009,039	12,933,376
Water storage equalization	2,540,000	—
	$25,055,198	$22,232,280

COMPARATIVE STATEMENT OF OPERATING AND PHYSICAL STATISTICS

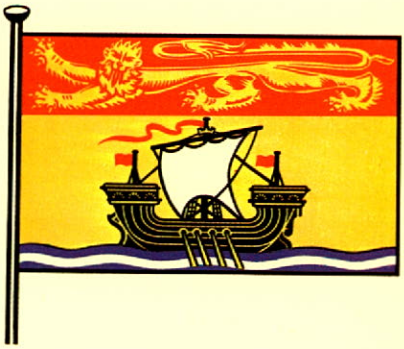
	1960 31 March	1963 31 March	1966 31 March	1969 31 March	1970 31 March
Plant Name Plate Capacity kw	265,025	348,736	430,261	928,461	1,032,286
Gross Generation—Purchases kwh	1,184,798,350	1,644,740,890	2,571,484,730	3,856,535,510	4,196,431,200
Total Energy Distributed	1,095,378,400	1,527,463,130	2,361,893,960	3,481,938,320	3,845,776,960
Total Revenue	$ 16,665,153	$ 22,591,554	$ 33,678,474	$ 45,023,257	$ 48,036,037
Total Expenditure	$ 16,416,332	$ 22,264,129	$ 33,108,342	$ 44,535,275	$ 44,829,949
Fixed Assets, including Work in Progress	$ 132,844,276	$ 170,859,403	$ 247,896,390	$ 372,542,866	$ 389,457,753
Current Assets	$ 14,669,666	$ 13,997,570	$ 20,896,855	$ 24,761,109	$ 26,176,000
Current Liabilities	$ 4,947,536	$ 6,057,956	$ 16,082,808	$ 22,829,687	$ 19,933,910
Inventories	$ 1,558,807	$ 1,596,262	$ 2,052,526	$ 2,254,310	$ 3,005,720
Long Term Debt—Net	$ 102,626,889	$ 144,442,899	$ 196,781,869	$ 292,314,836	$ 302,872,219
Sinking Fund Assets	$ 11,082,252	$ 15,699,798	$ 16,515,616	$ 20,982,534	$ 22,260,760
Accumulated Depreciation	$ 19,900,606	$ 30,720,448	$ 43,819,701	$ 62,226,483	$ 69,224,260
Other Reserves	$ 3,544,006	$ 8,693,469	$ 14,418,986	$ 22,232,280	$ 25,055,198
Reserve and Accumulated Depreciation	$ 23,444,612	$ 39,413,917	$ 58,238,687	$ 84,458,763	$ 94,279,458
Total Reserves—Percentage Fixed Assets	17.7	23.1	23.5	22.7	24.2
Circuit Miles Transmission Lines	1,396	1,845	2,255	2,485	2,549
Miles Distribution Circuits	7,512	8,390	8,586	8,765	8,810
Number Retail Customers	98,735	114,436	111,026	126,793	131,471
Number Industrial Customers	1,740	2,637	2,892	638	751
Number Commercial Customers	—	—	10,112	11,480	11,072
Number Street Light Customers	—	—	—	1,276	1,408

In 1964 a Commercial Rate was established and transfers to and from the other classifications have since been made following an analysis of each service. Manufacturing and processing industries are now included as Industrial Customers.



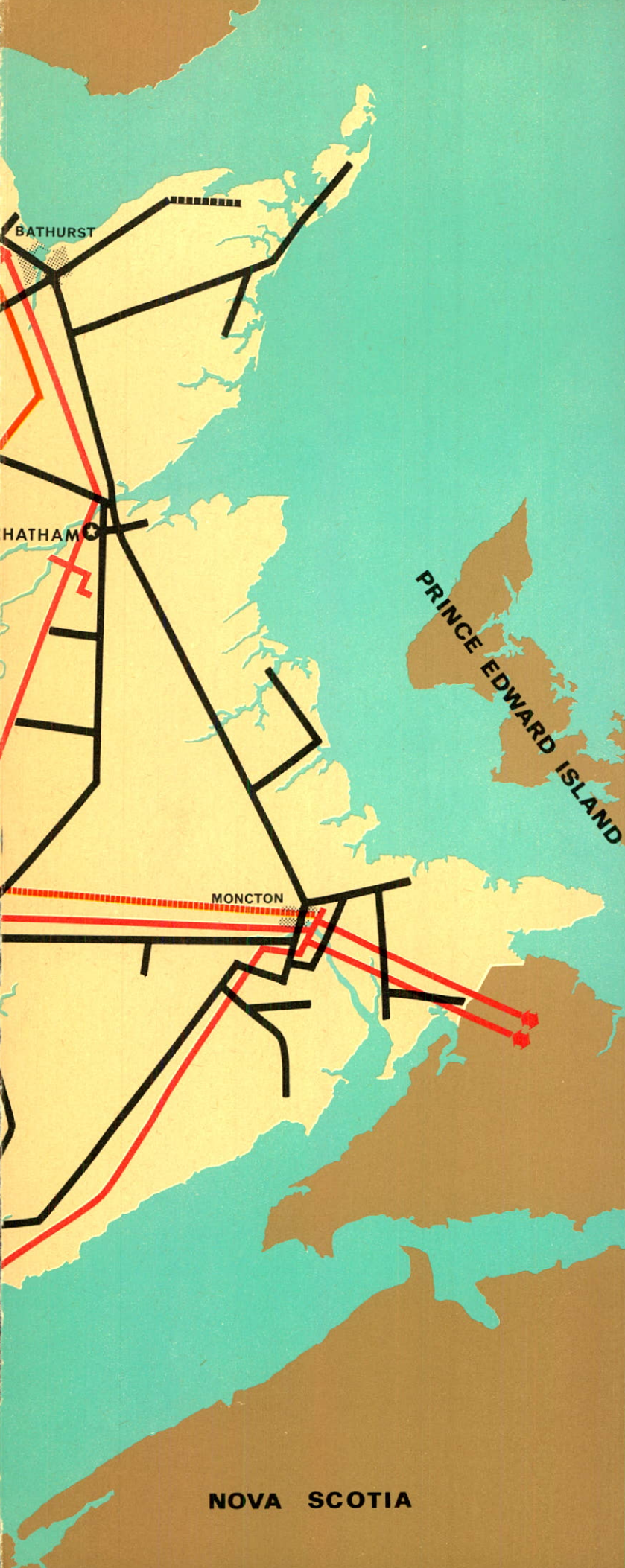


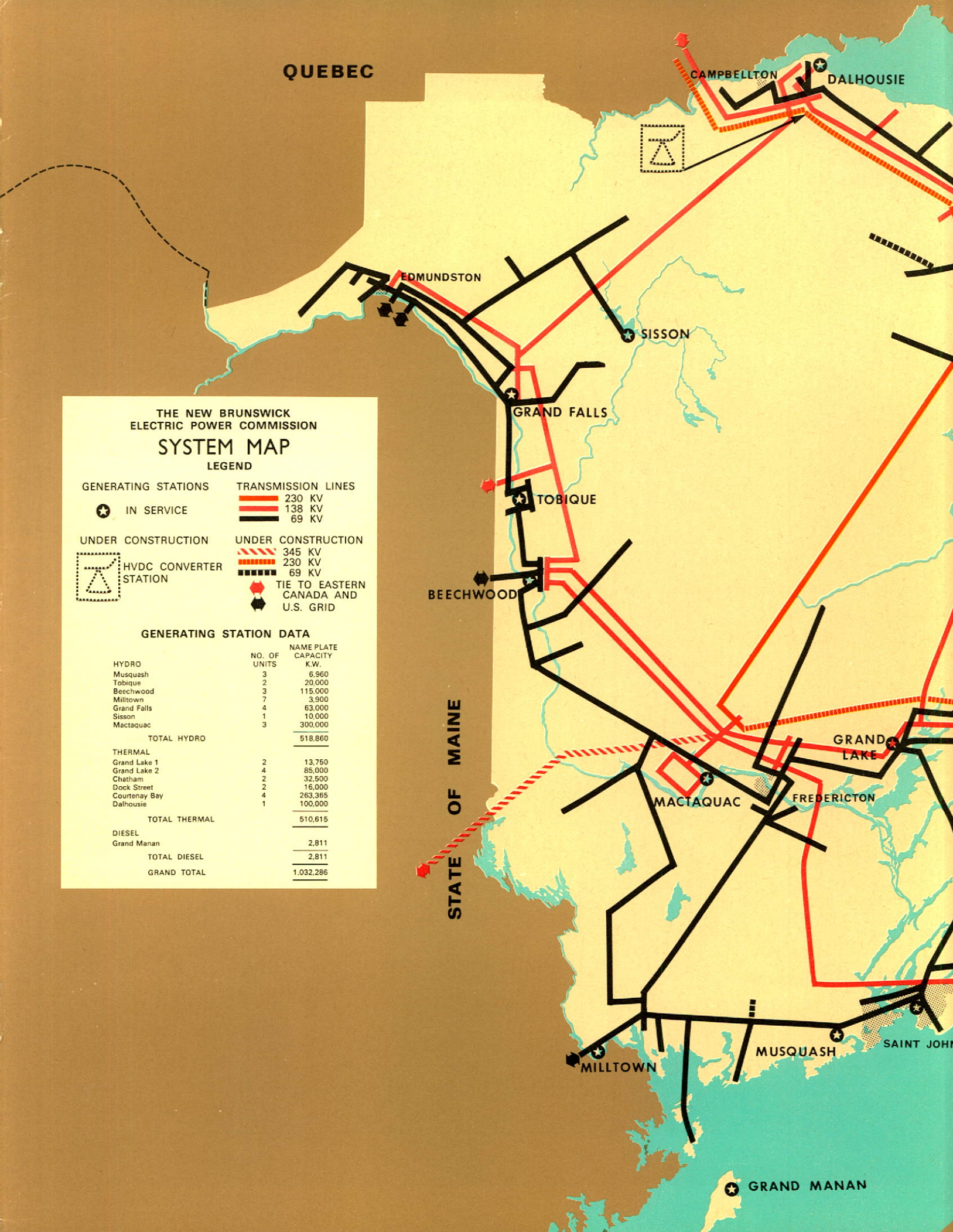
The above photos show the multi-purpose use of the Mactaquac Headpond setting the mood for recreation and industry. The top photos show sailboating and water skiing in the immediate forebay. The bottom photo shows the Ste. Anne-Nackawic Pulp and Paper complex situated at Nackawic, 20 miles above the dam.



N.B. FLAG

Flag as assigned to the Province of New Brunswick by Queen Victoria's Royal Warrant May 26, 1868. Adopted by Proclamation February 24, 1965. The symbols depicted on the Flag of New Brunswick are an ancient oared galley and a lion rampant. The gold lion on a red compartment was taken from the Arms of England. The galley is the representation of an ancient ship, and referred to in the history of New Brunswick's Flag as "symbolic of the shipping which is the principal employment and occupation of the Province".


BATHURST
HATHAM
MONCTON
PRINCE EDWARD ISLAND
NOVA SCOTIA



THE NEW BRUNSWICK
ELECTRIC POWER COMMISSION

SYSTEM MAP

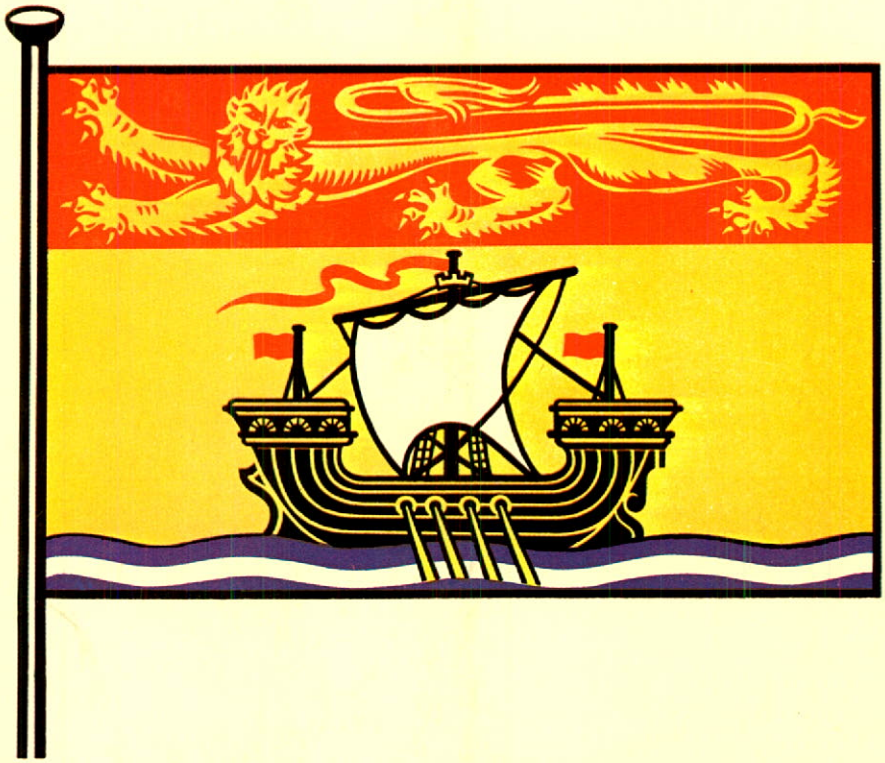
LEGEND

GENERATING STATIONS
IN SERVICE

TRANSMISSION LINES
230 KV
138 KV
69 KV

UNDER CONSTRUCTION
HVDC CONVERTER STATION

UNDER CONSTRUCTION
345 KV
230 KV
69 KV
TIE TO EASTERN CANADA AND U.S. GRID

GENERATING STATION DATA

	NO. OF UNITS	NAME PLATE CAPACITY K.W.
HYDRO		
Musquash	3	6,960
Tobique	2	20,000
Beechwood	3	115,000
Milltown	7	3,900
Grand Falls	4	63,000
Sisson	1	10,000
Mactaquac	3	300,000
TOTAL HYDRO		518,860
THERMAL		
Grand Lake 1	2	13,750
Grand Lake 2	4	85,000
Chatham	2	32,500
Dock Street	2	16,000
Courtenay Bay	4	263,365
Dalhousie	1	100,000
TOTAL THERMAL		510,615
DIESEL		
Grand Manan		2,811
TOTAL DIESEL		2,811
GRAND TOTAL		1,032,286